KIT, MIN O_2 FLOW ELIMINATION

CONVERSION PROCEDURE: 2 GAS MACHINES

WARNING: DO NOT install the Minimum O_2 Flow Elimination on machines having a low flow oxygen ratio controller (ORC) P/N 4113229.

NOTE: The following procedure applies to 2 gas machines. Skip to Page 5 for 3 and 4 gas machines.

1. Turn the System Power switch to STANDBY and remove AC power from the machine.
2. Close all cylinder valves and disconnect all pipeline supplies.
3. Remove the back cover of the flowmeter housing.
4. Remove the back cover of the vapor box to gain access to the ORM/ORMC.
5. Remove the press-on hose clamp and disconnect the flexible tubing from the right side (viewed from the rear) of the restrictor housing 4-way fitting. See Figure 1, upper view. (Earlier machines are configured with a 3-way fitting.)
6. Remove the press-on hose clamp and disconnect the flexible tubing from the hose barb at the O_2 restrictor housing.
7. Remove the press-on hose clamp and disconnect the flexible tubing from the O_2 port at the ORM or ORMC. See Figure 2.
8. Cut any tie straps securing the flexible tubing, and remove the tubing along with the associated tee fitting.
9. Remove the hose barb fitting from the right side of the 4-way fitting, and install a washer (P/N 4102165) and plug (P/N 4103801) as shown in the lower view of Figure 1.
10. Connect a 35 in. length of flexible tubing (P/N ML08003) and press-on hose clamp to the hose barb at the O_2 restrictor housing.
11. Connect the other end of the tubing to the hose barb at the O_2 port on the ORM or ORMC. Install a green O_2 label (PN 4109871) at each end of the tubing.
12. Restore power to the machine and re-connect the pipeline supplies (or open the cylinder valves).

NOTE: For later machines without the O_2/N_2O ratio alarm lamp, skip to Step 15.

CONVERSION PROCEDURE: 2 GAS MACHINES (continued)

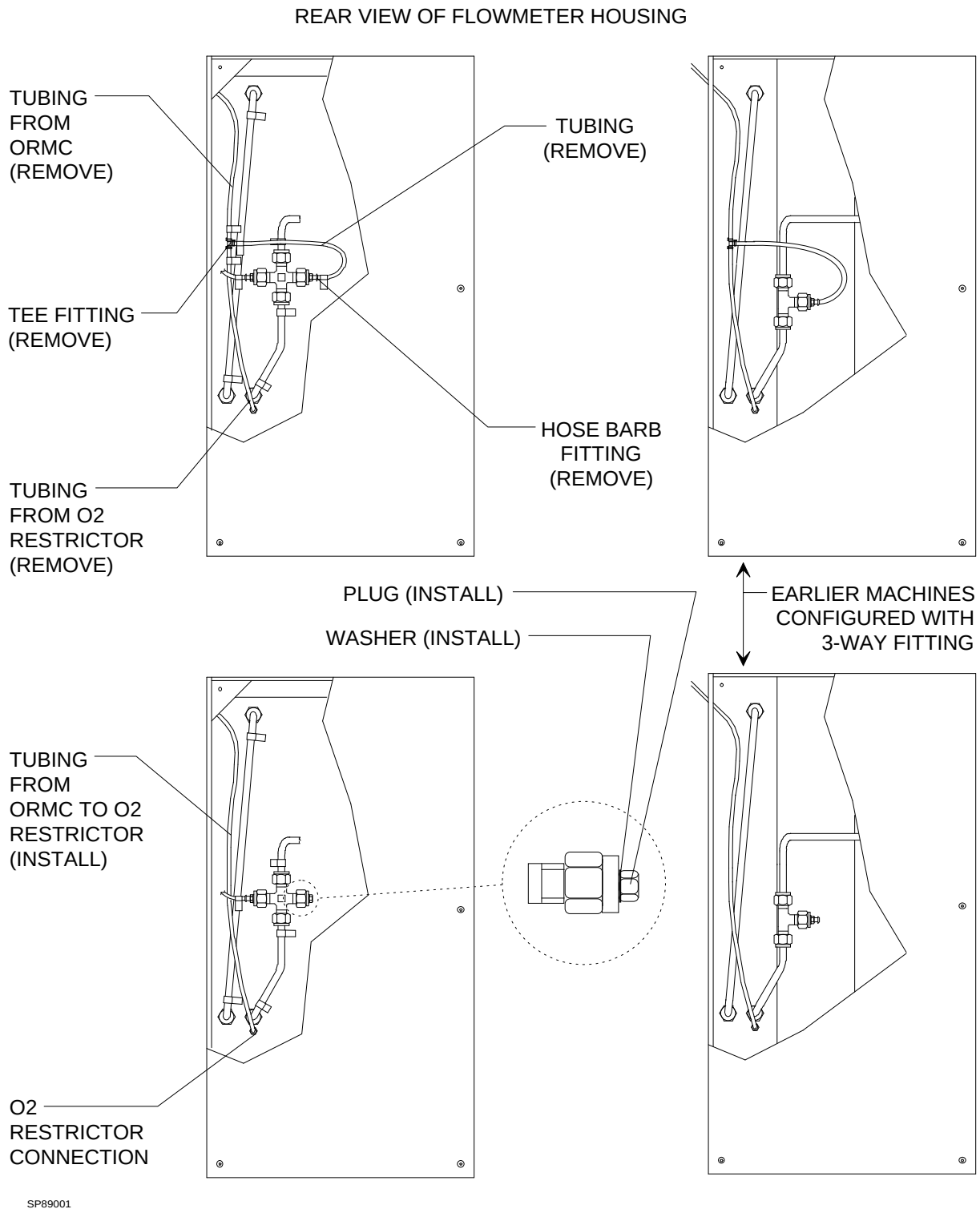


Figure 1: TUBING REMOVAL/INSTALLATION (MIN. O_2 FLOW ELIMINATION)

CONVERSION PROCEDURE: 2 GAS MACHINES (continued)

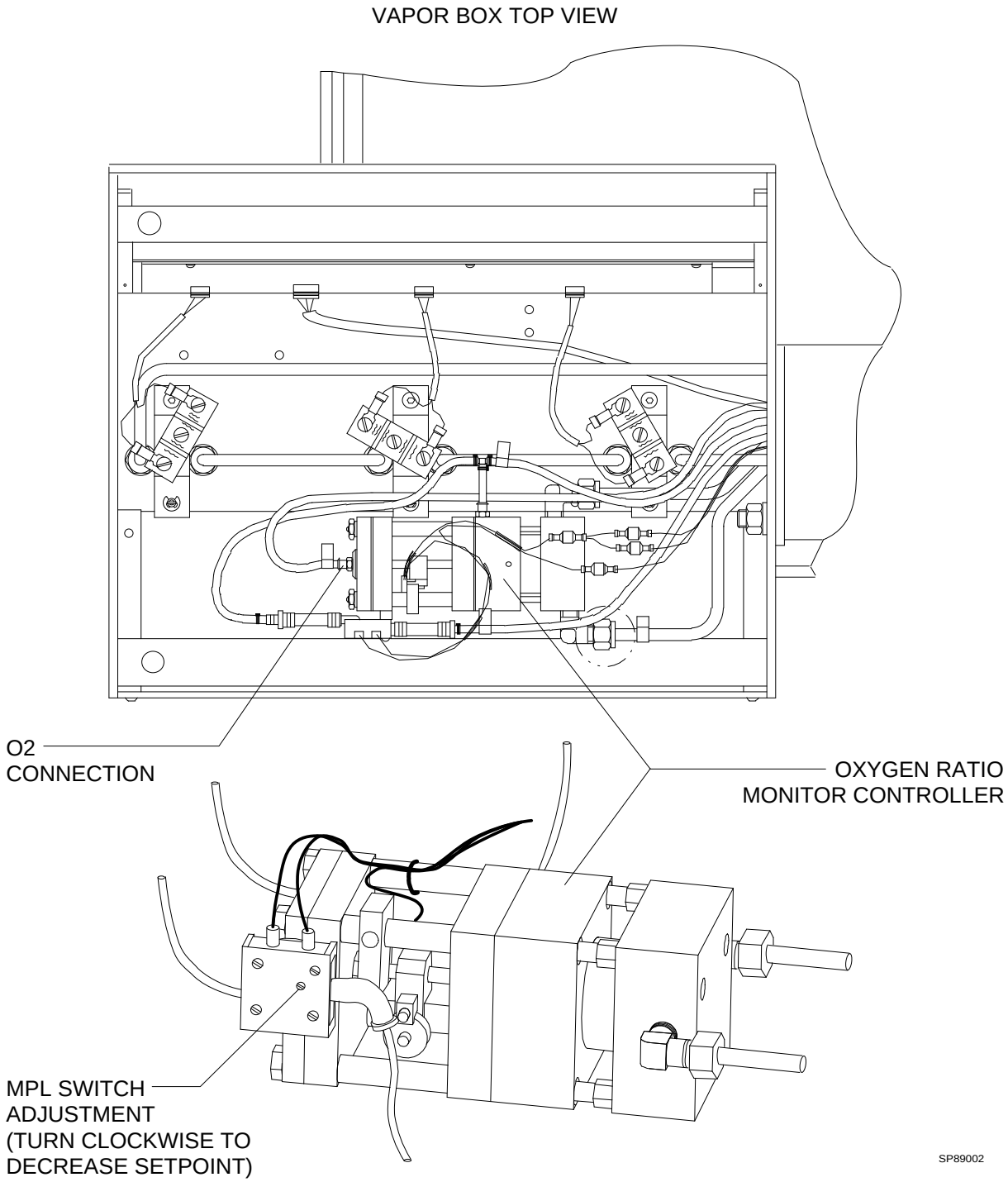


Figure 2: ORMC O_2 CONNECTION AND MPL SWITCH LOCATION

CONVERSION PROCEDURE: 2 GAS MACHINES (continued)

13. Open the N_2O flow control valve several turns. Slowly open the O_2 flow control valve and observe the O_2/N_2O ratio alarm lamp.

    The alarm lamp should be lighted when the N_2O flow is above 800 ml/min.

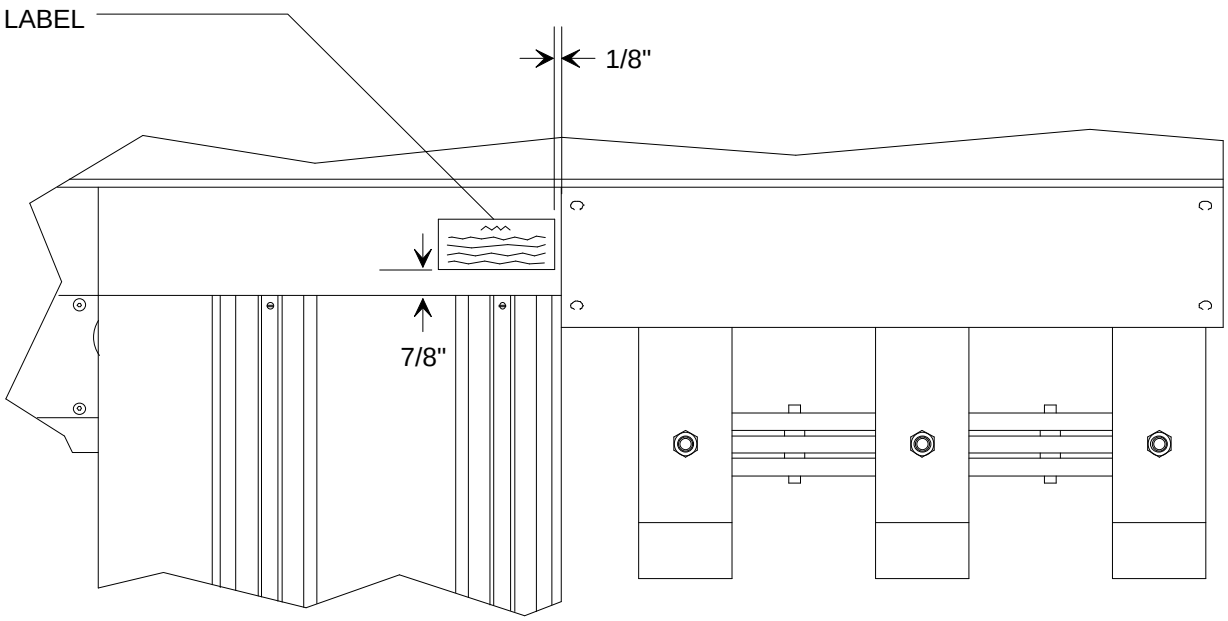
    Slowly close the O_2 flow control valve; the alarm lamp should be off when the N_2O flow is below 700 ml/min.

14. If necessary, adjust the MPL switch on the ORM or ORMC (see Figure 2) until the alarm lamp responds as noted in Step 13.

15. Reinstall the vapor box back cover, and reinstall the flowmeter housing back cover.

16. Install the Minimum Flow Elimination label on the front of the machine at the top right of the flowmeter housing - positioned as shown in Figure 3.

17. Perform a complete PMS on the machine.



FRONT VIEW OF MACHINE

Figure 3: MIN. O_2 FLOW ELIMINATION - LABEL LOCATION

CONVERSION PROCEDURE: 3 AND 4 GAS MACHINES

1. Turn the System Power switch to STANDBY and remove AC power from the machine.

2. Close all cylinder valves and disconnect all pipeline supplies.

3. Remove the back cover of the flowmeter housing.

4. Remove the back cover of the vapor box to gain access to the ORM/ORMC.

5. Remove the press-on hose clamp and disconnect the flexible tubing from the side hose barb on the minimum flow cut-off valve.

   Refer to Figure 1 for machines with Air.

   Refer to Figure 2 for machines without Air. (Earlier machines may be configured as shown in the alternate view.)

6. Remove the press-on hose clamp and disconnect the flexible tubing from the hose barb at the O_2 restrictor housing.

7. Remove the press-on hose clamp and disconnect the flexible tubing from the O_2 port at the ORM or ORMC. See Figure 3.

8. Cut any tie straps securing the flexible tubing, and remove the tubing along with the associated tee fitting.

9. Remove the hose barb fitting from the minimum flow cut-off valve, and install a washer (P/N 4102165) and plug (P/N 4103801) as shown in the lower view of Figure 1 and Figure 2.

10. Connect a 35 in. length of flexible tubing (P/N ML08003) and press-on hose clamp to the hose barb at the O_2 restrictor housing.

11. Connect the other end of the tubing to the hose barb at the O_2 port on the ORM or ORMC. Install a green O_2 label (PN 4109871) at each end of the tubing.

12. Restore power to the machine and re-connect the pipeline supplies (or open the cylinder valves).

NOTE: For later machines without the O_2/N_2O ratio alarm lamp, skip to Step 15.

13. Open the N_2O flow control valve several turns. Slowly open the O_2 flow control valve and observe the O_2/N_2O ratio alarm lamp.

CONVERSION PROCEDURE: 3 AND 4 GAS MACHINES (continued)

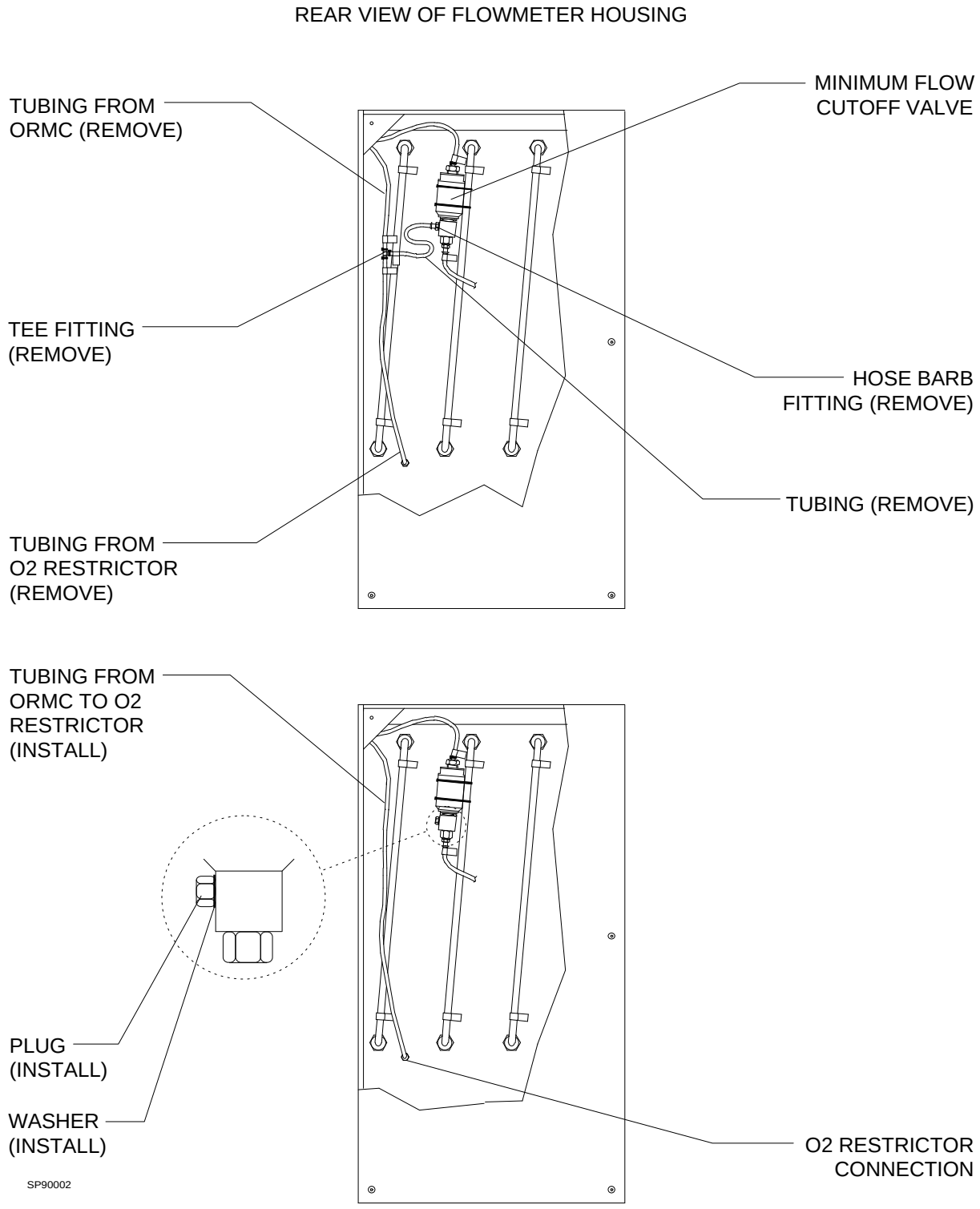


Figure 1: TUBING REMOVAL/INSTALLATION, 3 & 4 GAS MACHINES WITH AIR (MIN. O_2 FLOW ELIMINATION)

CONVERSION PROCEDURE 3 AND 4 GAS MACHINES (continued)

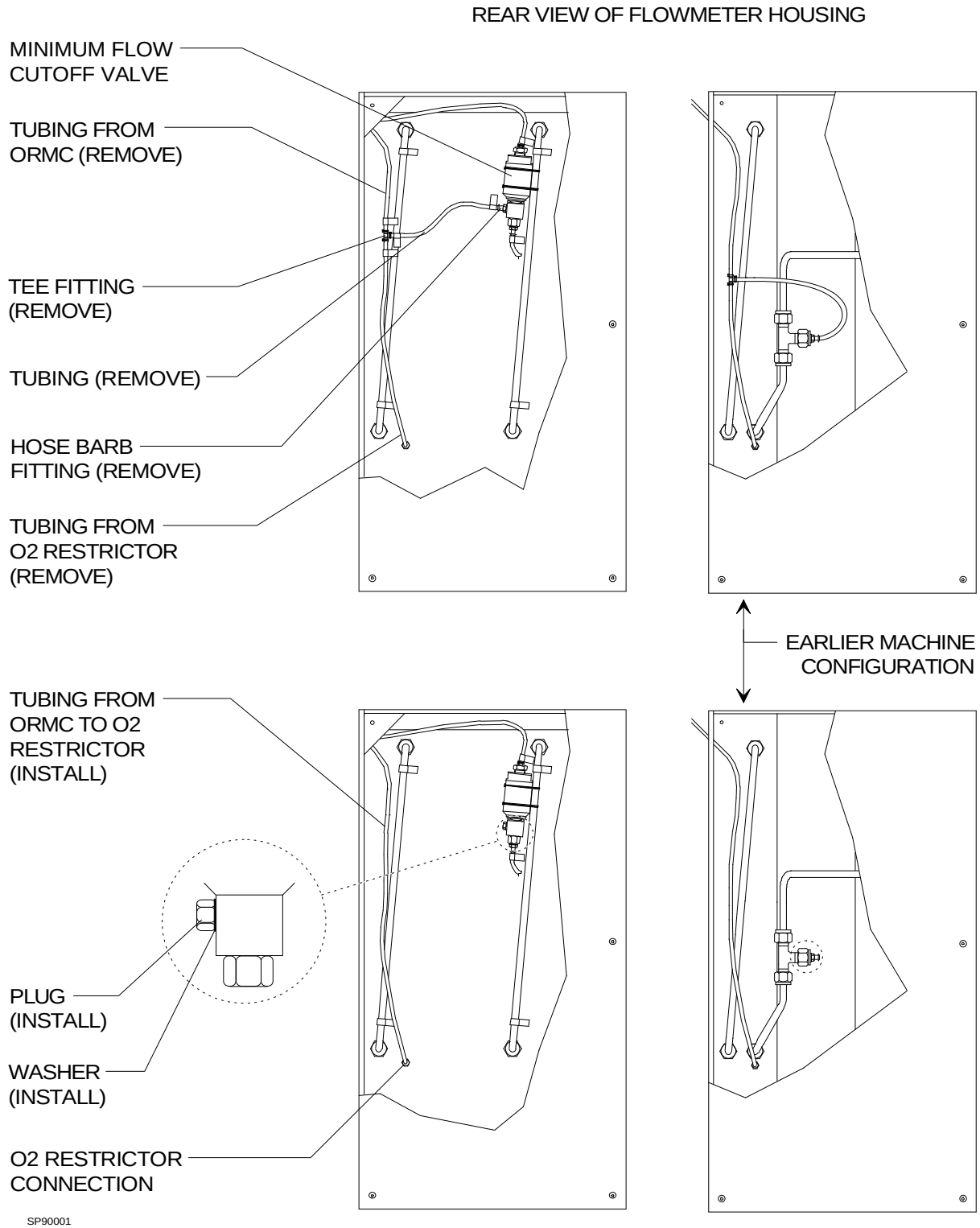


Figure 2: TUBING REMOVAL/INSTALLATION, 3 & 4 GAS MACHINES WITHOUT AIR (MIN. O_2 FLOW ELIMINATION)

CONVERSION PROCEDURE: 3 AND 4 GAS MACHINES (continued)

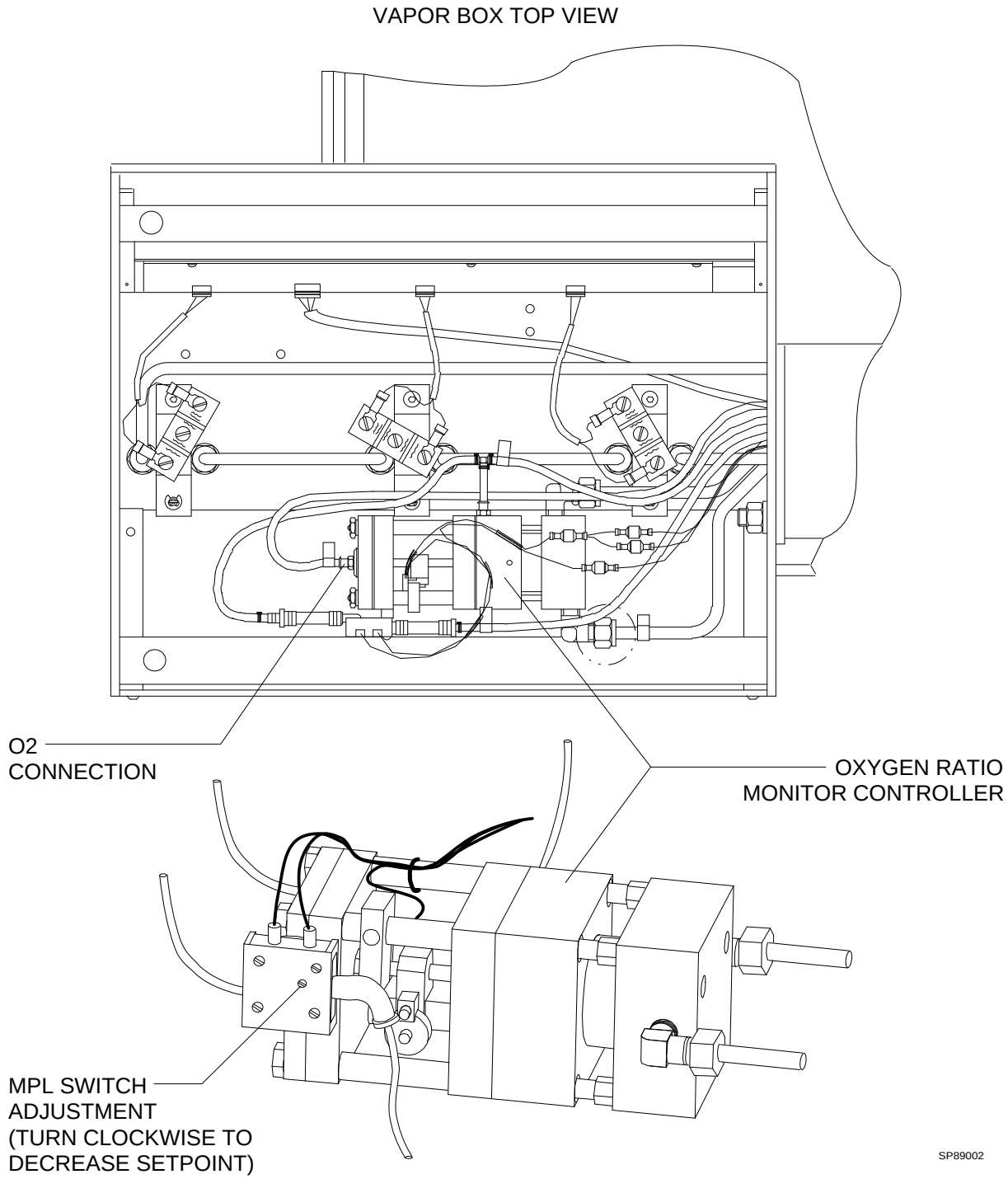


Figure 3: ORMC O_2 CONNECTION AND MPL SWITCH LOCATION

CONVERSION PROCEDURE: 3 AND 4 GAS MACHINES (continued)

The alarm lamp should be lighted when the N_2O flow is above 800 ml/min.

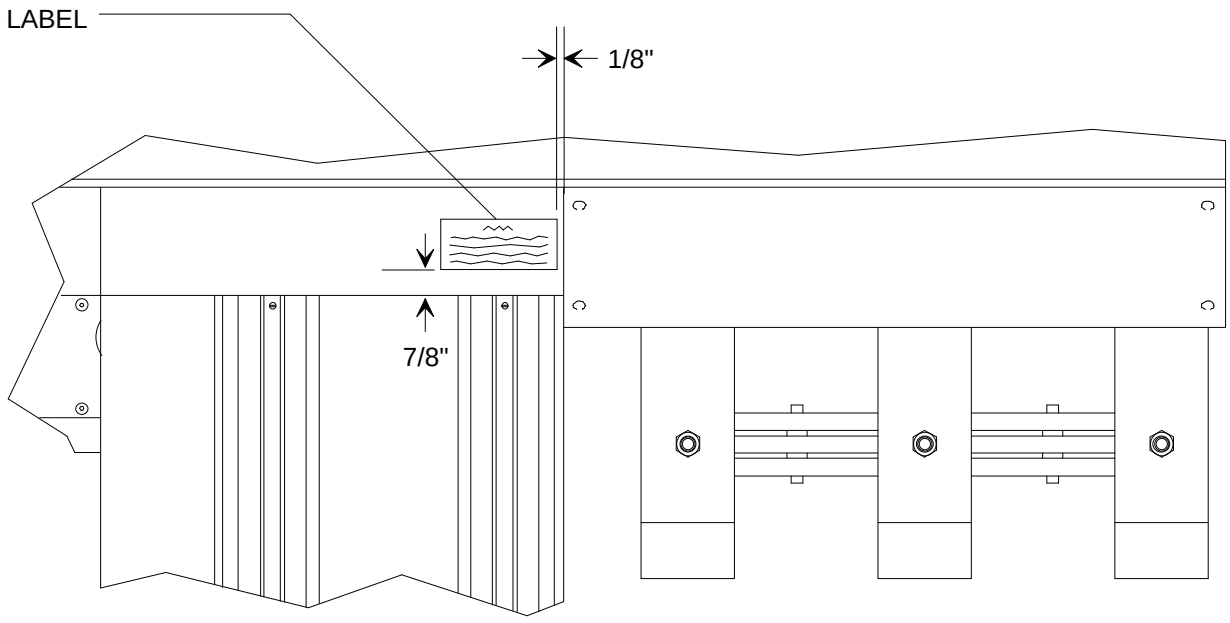
Slowly close the O_2 flow control valve; the alarm lamp should be off when the N_2O flow is below 700 ml/min.

14. If necessary, adjust the MPL switch on the ORM or ORMC (see Figure 3) until the alarm lamp responds as noted in Step 13.

15. Reinstall the vapor box back cover, and reinstall the flowmeter housing back cover.

16. Install the Minimum O_2 Flow Elimination label on the front of the machine at the top right of the flowmeter housing - positioned as shown in Figure 4.

17. Perform a complete PMS on the machine.



FRONT VIEW OF MACHINE

Figure 4: MIN. O_2 FLOW ELIMINATION - LABEL LOCATION

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Part Number: SP00089
Rev: B
Date: July 10, 1996
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